

Vegetables in Containers Require Enough Sun, Space, Drainage

by Kathryn L. Arthurs

Growing vegetables in containers can be fun as well as challenging, and for those of us with little or no ground space available it provides a good alternative. All you need to grow container vegetables is enough sun and adequate space for a good-sized container.

Most types of vegetables lend themselves to container gardening. All you have to do is find the varieties that have been hybridized for container growth, or those that can be adapted to confined quarters. Some crops like corn that produce large root systems will need a very big container. Other plants with indeterminate growth habits—such as pole beans, cucumbers, and tomatoes—require a support system. Still other vegetables will grow in average-size pots or in hanging baskets.

Container-grown vegetables make few demands when it comes to location. Absolute requirements are 5 hours or more of full sun, enough space to set the container, and adequate air circulation. A nearby water supply equipped with a hose and a soaker/sprayer nozzle attachment is a real convenience, but not essential.

Once these demands are met, you can place containers anywhere—on a patio or deck, terrace, balcony, window box, garage roof, walkway. If you have no available ground space, consider growing vegetables in hanging baskets.

Drainage can be a problem in container gardening. With smaller containers, wherever possible use drip saucers to catch excess water. A large container without a saucer that sits

directly on a solid surface (a cement or brick patio, for instance) may benefit from being elevated slightly. If the container stays in contact with a solid surface, water can accumulate, causing root rot as well as possibly staining the patio surface. You can use short lengths of wood to raise the pots one or two inches off the patio.

Types of Containers

Large containers are the best for growing vegetables. As long as the plants have ample root space, you can introduce most vegetables that normally grow in the ground.

For growing vegetables, a minimum-size container is a 6-inch diameter pot with a soil depth of 8 inches. This size can sustain lettuce, herbs, peppers, radishes, and other shallow-rooted vegetables. Root crops—such as beets, carrots, radishes, and turnips—need depth and enough surface space to fill out to their mature size. Thinning these crops will be essential.

Each vegetable determines the best size and style container it needs for an adequate harvest. Very large containers are required for regular-size tomatoes, for squash, pole beans, cucumbers, and corn. Half barrels, wooden tubs, or large pressed paper containers work well.

Adequate drainage is another requirement for growing vegetables in containers. Most commercial containers come with drainage holes, but you may find these insufficient. Since most vegetables in containers need daily watering, and fast draining is crucial, consider increasing the size or number of the drainage holes or slots. Wooden containers can have new drainage holes drilled. Existing holes in clay and ceramic pots can

Kathryn L. Arthurs is a garden writer/editor for a Western publishing company. She lives in Palo Alto, Calif.



John O'Neill

be enlarged by carefully chipping away the edges, or additional ones may be drilled with a masonry bit.

If a container lacks drainage holes, you can provide a drainage layer of rocks, pebbles, or pot shards to hold any excess water until it can be used or evaporated. Since vegetables need daily watering (depending on the individual plant and your climate), the drainage layer should fill from a quarter to a third of the total container volume. Keep in mind that this drainage layer won't guarantee success; containers with ample drainage holes are best for growing vegetables.

There are many types of containers you can purchase or make yourself that can be used for growing vegetables: red clay pots, wooden containers, pressed paper pots, plastic pots, and raised beds. Each type has advantages and drawbacks. Study your individual needs carefully, then select the containers that best meet them.

The container gardener's stand-by, red clay pots, have much to recommend them. They are readily available in a wide range of sizes and shapes; they are porous, allowing excess moisture to evaporate through their sides; they "weather" well; and their weight keeps them from being top-heavy. They are attractive and blend into most garden or patio designs.

On the minus side, clay pots are breakable and expensive. Filled with damp soil, large pots will be heavy and difficult to move. Their porosity lets the potting mix dry out quickly, requiring more frequent watering.

Tubs, half barrels (originally used to age wine or whiskey), rectangular or square boxes, and hanging slatted baskets all come in wood. Redwood is probably the most commonly used type of wood, with cedar a close second. Both woods resist damage by termites and "weather" well. Wood, like clay, is porous.

Wooden containers are available in a wide variety of sizes and shapes and are relatively inexpensive. Some wooden containers will deteriorate; those that are reinforced with metal bands are sturdier than containers held together with nails or glue. Like clay pots, half barrels and large tubs will weigh a lot when planted. Check plants in wooden containers daily for water needs.

Pressed paper pots, a recent innovation in plant containers, come in many sizes, are inexpensive and lightweight. Their weight can be a disadvantage if wind is a problem or if the

Stair-step benches hold containers filled with vegetables. Sunny brick patio is ideal location.

vegetables grown in them are top-heavy.

Plastic is a common material used in smaller containers and hangers. Plastic pots are lightweight, inexpensive and non-porous. Most plastic containers come in green or white, colors that can be visually jarring in a garden. They are breakable.

Since plastic pots are non-porous, moisture is retained in the potting mix. This will be a problem only if drainage holes are inadequate or you tend to overwater. Plastic hanging baskets make good choices because of their weight and water retention. Hanging plants dry out more quickly than other container plants and need a firm support to hang from.

A raised bed lacks one of the basic qualifications for container gardening: it is stationary. It does, however, restrict the growing area and provide for good drainage.

A Good Potting Mix

When you garden in containers, you want a potting mix that is fast draining, yet provides enough water retention to keep the soil evenly moist in the root zone area. A mix that drains too fast won't provide enough moisture, and one that holds too much moisture may cause the roots to rot.

Most home gardeners who grow vegetables in containers find a "soil-less" commercial potting mix works well. These mixes are easy to use, lightweight, fast-draining, and free from soil-borne diseases and weed seeds. Since they come in varying-sized bags, you can buy as much as you need at the time. The unused portion can be stored in its bag until you want to use it again.

If you choose to make your own mix, a good potting soil for containers consists of equal parts sharp sand (be sure to buy washed sand), good garden soil, and organic material (peat moss, leaf mold, fir bark, or

sawdust). To be sure your homemade mix is free from disease and weeds, heat it in a low temperature oven for about 1½ to 2 hours. This should kill any bacteria, pests, or weed seeds present.

Other good soilless potting mixes specially formulated for container gardening are the University of California mix and the Cornell mix. Information on each mix can be obtained by writing the University of California, Division of Agricultural Sciences, Berkeley, Calif. 94720, or to Cornell University, Department of Floriculture, Ithaca, N. Y. 14853.

Some commercial mixes are extremely lightweight. These are excellent to use in hanging baskets, in very large containers that you want to move around, or where sheer weight could be a problem, such as on a balcony or in a window box. An ultra-lightweight mix also has some disadvantages. If wind is a problem in your area, top-heavy containers may topple over. Top-heavy plants, such as corn, tomatoes, and eggplants, may not get enough soil support for their root systems.

If you find your commercial potting mix isn't absorbing water (the water runs through the container rapidly and many particles float on the surface without absorbing any moisture), try using a few drops of liquid detergent in the water. The detergent acts as a wetting agent. Or you can use a commercial wetting solution. Once these stubborn mixes begin to soak up water, your problem should be solved.

A soilless commercial mix contains few if any nutrients. Vegetables grown in these mixes will need regular fertilizing with a complete fertilizer formula.

Container vegetables have needs that differ from vegetables grown in the ground. Fertilizing, watering, general maintenance, and harvesting demand close daily attention and are

crucial to the plant's well-being. Vegetables in containers are at the gardener's mercy.

Planting Techniques

Most vegetables grow as well from seed as from transplanted seedlings. However, if your containers will be conspicuous (on a balcony, patio, or in a window box), planting seedlings will give you an instant display. Some vegetables, such as tomatoes, peppers, eggplants, and squash, may be difficult to grow from seed. Using seedlings will speed up their growing process.

If you plant seeds in larger containers, you can still have attractive pots while the seeds are sprouting. Plant annual or herb seedlings as a border.

Limiting the number of plants to each container is very important. Estimate the number of plants a container can sustain. Measure root crops by the space they'll occupy when fully matured. Bush squash and vine crops such as melons and cucumbers should each have a good-sized space. Corn needs cross-pollination, so plant several stalks to each container.

Beans and tomatoes with indeterminate growth habits will need supports. Beans can climb up poles or a trellis. Tomatoes can be staked or enclosed in a wire cage.

Other vegetables can be grown singly or in groups, depending on the container size and eventual size of the plant at maturity.

To plant vegetables by seed, fill the container to within 1 inch of the rim with damp potting mix, then sow seeds according to their package directions. Be sure to plant more than you want, since it's unlikely you'll get 100 per cent germination. When the seeds have sprouted and each seedling has mature leaves, thin the plants to the desired number.

To thin seedlings in a container, cut off the seedling's stem at the soil

level with scissors, a knife, razor blade, or pruning shears. Pulling unwanted seedlings out may disturb or destroy surrounding root systems.

To plant vegetable seedlings, prepare the container as before. Remove the seedling carefully from its pot. (Seedlings grown in peat pots can be planted directly, pot and all. Break off the upper rim so the soil level is uniform.)

If the roots are tangled or pot-bound, loosen them with your fingers. Dig a small hole in the potting mix and plant the seedling. Try not to bury the plant stem or change the soil level. Tomato seedlings are an exception; you can bury tomato plants up to half the stem length as long as there are at least 2 sets of mature leaves above the soil.

To help transplanted seedlings establish themselves, use a transplant starter solution. Follow label directions.

Vining plants and vegetables, such as tomatoes, may need to be staked or trellised. Any support structure must be sturdy. Stakes, poles, and trellises should be set in place when the seedlings are little to avoid disturbing their root systems (wire cages used for tomatoes should be set up at this time too). Some vining plants, like pole beans, will attach themselves to the support. Others, like tomatoes or cucumbers, need to be tied. Use twine or plastic tape for tying; be sure not to tie stems too tightly or cut the stem. The most stable support systems are those attached to the container itself.

Watering

Watering is probably the most critical task a container gardener performs. More plants grown in containers fail from improper watering than from any other single cause. Plants given too much water may develop root rot. Vegetables that receive too little water may wilt and die.

Improper watering can also cause blossoms to drop.

Ideally, potting mix in a container should be evenly moist throughout—not waterlogged. Plants need ample moisture to prevent “water stress.”

Many gardeners water containers in the morning, adding water until it comes out the drainage holes. This method is recommended only if your potting mix is fast-draining and the container has adequate drainage holes.

With watering in the morning, foliage should be dry by evening, helping prevent diseases. If you live in a hot, dry climate, check your containers again in the early afternoon. Vegetables in containers will dry out faster than those in the ground.

The best way to water container plants is by hand—either with a hose that has a sprayer attachment or a watering can. More inventive gardeners may want to try automatic watering systems, but these can be costly.

A few words of warning: Hoses without a sprayer/mister nozzle can disperse water with enough force to create holes in the potting mix. This can damage root systems. Also, if your hose sits in the sun, let enough water run through it until the water is cool or lukewarm. Hot water isn't good for plant roots.

Mulching and Fertilizing

Mulching, especially in larger containers, can help keep moisture in the soil longer. You can use any of the organic mulches, such as wood chips, compost, or sawdust, very effectively. Plastic mulches will work, but they aren't too attractive.

Vegetables grown in containers are trapped. Once they use the nutrients available in the potting mix, the root systems have nowhere else to go. Frequent and regular fertilizing is the answer.

The container gardener will find many kinds of complete fertilizers

specially formulated for use on vegetables. Common N-P-K breakdowns are 18-20-16, 18-12-10, or 10-10-10. Fish emulsion is also commonly used.

These fertilizers can be applied in a liquid solution in conjunction with watering, scratched or dug in dry form into the soil surface, or, in the case of timed-release fertilizers, sprinkled on the soil surface. Whichever type you choose, follow the label directions carefully.

Since containers with vegetables should be watered daily, nutrients can leach out of the soil rapidly. Consider applying fertilizer at half strength twice as often; this should assure your vegetables consistent fertilizer.

Timed-release fertilizers are also a good solution. Their capsules are constructed to release a tiny amount of fertilizer each time the vegetable is watered, and you only apply this type once a season.

Container gardeners are fortunate since each vegetable is isolated by its pot, and no one crop is concentrated, lessening the chance of a pest infestation. Unfortunately, pests can still present a problem. Most insects, such as whiteflies and aphids, can be discouraged with blasts of water. Tomato hornworms can be hand picked. Snails and slugs can be baited with a chemical.

If pest damage becomes intolerable or your crop is being damaged, use a spray formulated to kill the damaging pest. Be sure any chemical sprays you choose are recommended for use on vegetables.

Choosing Vegetables

Vegetables that grow best in containers share certain characteristics. They will grow in confined spaces, usually have determinate growth habits, need a minimum of added support, and produce a large enough crop yield to make your efforts worthwhile.

Some vegetables, such as asparagus and corn, have such large root systems that trying to grow them in containers—if you can locate pots large enough—is very difficult. A low crop yield per plant, again asparagus and corn are good examples, is another deterrent to container culture.

Listed here are the vegetables, and specialized varieties of more difficult vegetables, that are recommended as best adapted to life in containers. Most have compact growth habits and relatively high crop yields. Some have been specifically hybridized for container growth.

Other varieties of recommended vegetables can also be adapted to containers, but because of their size or growth habits will require more work and attention. With the popularity of growing vegetables in containers on the upswing, seed hybridizers should continue to find new, more adaptable vegetable varieties.

Artichoke. "Green Globe" is a consistent producer. Use very large containers.

Beans. Use bush forms in containers for best results. Pole varieties need supports (poles in teepee shape or trellises will work); plants may also be topheavy. Snap beans to try are "Green Crop", "Tender Crop", "Bush Romano", "Bush Blue Lake", "Royalty" (purple pod). Lima bean varieties include "Henderson Bush" and "Jackson Wonder Bush".

Beets. These root crops will need at least 10 to 12 inches of soil depth and about a 3- to 4-inch space between each plant. Two good varieties are "Little Egypt" and "Early Red Ball".

Brussels sprouts. This cool weather crop needs a large container, but produces a heavy yield per plant. Two compact varieties are "Jade Cross" and "Long Island Improved".

Cabbage. Regular varieties aren't recommended for containers. You can try dwarf varieties such as "Dwarf

Morden" and "Earliana". Chinese cabbage is a good container crop; plant "Michihli" or "Burpee Hybrid".

Carrots. Be sure to use containers with enough depth (at least 12 inches up to 20) for root formation and a very light mix for good growth. Any variety will grow in containers. Some of the shorter varieties are fine: try "Danvers Half Long", "Little Finger", "Short & Sweet", and "Tiny Sweet".

Chard. Any variety will grow in a large container, at least 2 feet deep. Use a potting mix with enough support for a large root system.

Collards. If you harvest the outer leaves consistently, you can have a continuous supply of greens. "Vates" is a compact variety.

Corn. Because of its size, low crop yield per plant, and need for cross pollination, corn isn't a good container vegetable. If you still want to try it, plant dwarf or midget varieties. Plant at least three stalks per container. Some varieties to consider are "Golden Midget", "Golden Cross Bantam", "Midget Hybrid", and "Fireside Popcorn".

Cucumber. Cucumbers need a large container, and some can adapt to a trellis support. The varieties that form small vines or are bushlike are best: "Little Minnie", "Tiny Dill", "Spartan Dawn", and "Cherokee 7". "Patio Pik" and "Pot Luck" were developed for containers and can be used in hanging baskets.

Eggplant. Eggplant needs a large container to grow well. Since warm soil is required for good growth, plant seedlings. Any variety will grow in containers; smaller varieties are "Morden Midget" and "Slim Jim."

Herbs. All of the herbs can be grown in containers.

Endive. Plant any variety in early spring; reseed containers again in August for a fall crop.

Kale. Plant any variety in a large container. Harvest outer leaves to extend the crop.

Kohlrabi. This vegetable's unusual appearance makes it a conversation piece in a container. Any variety is fast-growing.

Lettuce. Because lettuce is a cool weather crop, being able to move it to a shaded or protected spot is a plus. Try growing leaf lettuce in containers; harvest the outer leaves for a continuous harvest. Any variety can be container-grown.

Melons. Because of the plant size and low yield, growing melons in containers is impractical. You can try some of the midget varieties in large containers. A midget cantaloupe is "Minnesota Midget". "Yellow Lollipop", "Red Lollipop", and "Little Midget" are small-size watermelons.

Mustard Greens. Extend the harvest by picking outer leaves. Mustard greens are a good container crop.

Okra. Plant this Southern favorite in a large container. Plants have a high crop yield. Try "Dwarf Green Long Pod", "Clemson Spineless", and "Red River".

Onions. While most onions can be grown in containers, the larger types make unattractive displays. Chives and green bunching onions (scallions) are good pot plants.

Peas. Peas grown in containers demand a lot of attention, need large containers, and produce a small yield for your time and effort. If you want the challenge, you can try "Little Marvel", "Green Arrow", "Dwarf Gray Sugar", and "Mighty Midget".

Rhubarb. In larger containers, any variety will do well and make an attractive display. Move pots to a garage or sheltered area during a freeze.

Radishes. All varieties make excellent container plants. You can use them as borders in large containers.

Spinach. Another cool season crop, spinach can be grown in boxes or large containers. New Zealand spin-

ach (not a true spinach) grows well in pots and recovers rapidly from cutting.

Squash. Not a good container crop because of its size, but you can attempt it if you use very large pots and plant bush varieties. One new hybrid, "Scallopini", forms a compact bush plant.

Tomatoes. Many varieties have been hybridized especially for containers. Use medium to large containers since most tomatoes need some support. Use stakes or a wire cage as a support; be sure the wire squares are large enough to allow for harvesting.

Some tomato varieties to try are "Tiny Tim", "Small Fry", "Patio Hybrid", "Sugar Lump", "Tumbling Tom" (recommended for hanging baskets), "Stakeless", "Burpee's Pixie", "Salad Top", "Sweet 100", and "Toy Boy".

Harvesting

Since container gardening is a small-scale operation, most crops will be harvested for a specific meal. This allows you to pick them just before meal preparation begins so they will be at their freshest.

Pick leafy crops carefully, such as chard, lettuce, or collards. Remove only the outer leaves to keep the plant producing. Root crops, such as radishes or carrots, should be pulled out without disturbing their neighbors. Crops that have fruit ripening continuously, like tomatoes and beans, should be picked so as not to ruin or destroy future fruit.

Try not to pick more of a crop than you can use. If you harvest too much, keep your vegetables in the crisper section of a refrigerator. It is unlikely that a container crop would produce enough to make canning or freezing worthwhile.